Montana Fish, Wildlife & Parks

SPECIFICATIONS FOR WORK
SPECIAL PROVISIONS

Contents:

1. PROJECT DESCRIPTION

The Project involves construction work associated with:

Washoe Park Trout Hatchery Isolation Building Facility
Fish, Wildlife & Parks (FWP) project # 7153603
Located in Anaconda, MT

The work consists of the construction of a new, one story, 900 s.f. building of conventional wood framing on a concrete slab with drainage troughs.

2. PROJECT RELATED CONTACTS

Project contacts are designated as follows:

Owner:
Montana FWP
1420 E. Sixth Ave.
PO Box 200701
Helena, MT 59620-0701

FWP Project Representative:
Jason Senn, P.E.
FWP Project Manager
1522 9th Avenue
Helena, MT 59620
406-841-4007 (wk)
406-431-4032 (cell)
406-841-4004 (fax)

3. SITE INSPECTION

All Bidders should satisfy themselves as to the construction conditions by personal examination of the site described in this document. Bidders are encouraged to make any - investigations necessary to assess the nature of the construction and the difficulties to be encountered, see General Conditions, Article 3.

4. SOILS INFORMATION

Geotechnical investigation work has been completed for this Project. It is the responsibility of the Bidders to review and interpret all investigations, findings, and reports made part of this contract prior to bid preparation, see General Conditions, Article 3.

5. PROJECT REPRESENTATIVE, INSPECTIONS, AND TESTING

The Contractor's work will be periodically tested and observed to insure compliance with the Contract Documents. Complete payment will not be made until the Contractor has demonstrated that the work is complete and has been performed as required. If the Project Representative detects a discrepancy between the work and the requirements of the Contract Documents at any time, up to and including final inspection, such work will not

be completely paid for until the Contractor has corrected the deficiency, see General Conditions, Article 9.

The Project Representative will periodically monitor the construction of work to determine if the work is being performed in accordance with the contract requirements. The Project Representative does not have the authority or means to control the Contractor's methods of construction. It is, therefore, the Contractor's responsibility to utilize all methods, equipment, personnel, and other means necessary to assure that the work is installed in compliance with the Drawings and Specifications, and laws and regulations applicable to the work. Any discrepancies noted shall be brought to the Contractor's attention, who shall immediately correct the discrepancy. Failure of the Project Representative to detect a discrepancy will not relieve the Contractor of his ultimate responsibility to perform the work as required, see General Conditions, Article 3.

The Contractor shall inspect the work as it is being performed. Any deviation from the Contract requirements shall be immediately corrected. Prior to any scheduled observation by the Project Representative, the Contractor shall again inspect the work and certify to the Project Representative that he has inspected the work and it meets the requirements of the Contract Documents. The Project Representative may require uncovering of work to verify the work was installed according to the contract documents, see General Conditions, Article 12.

The work will be subject to review by the Project Representative. The results of all such observations, and all contract administration, shall be directed to the Contractor only through the Project Representative.

5.1 Services Required by the Contractor. The Contractor shall provide the following services:

a. Any field surveys to establish locations, elevations, and alignments as stipulated on the Contract Documents. FWP reserves the right to set preliminary construction staking for the project. The Contractor is responsible to notify FWP for any construction staking discrepancies.

b. Preparation and certification of all required shop drawings and submittals as described in the General Conditions, Article 3.

c. All testing requiring the services of a laboratory to determine compliance with the Contract Documents shall be performed by an independent commercial testing laboratory acceptable to the Project Representative. The laboratory shall be staffed with experienced technicians properly equipped, and fully qualified to perform the tests in accordance with the specified standards.

d. Preparation and submittal of a construction schedule, including submittals, see General Conditions, Article 3. The schedule shall be updated as required, as defined in the Contract Documents.

e. All Quality Control testing as required by the Contractor's internal policies.

f. All Quality Assurance testing and/or re-testing as stated in the Contract Documents, see General Conditions, Article 13.

5.2 Services Provided by the Owner. The Owner shall provide the following services at no cost to the Contractor except as required for retests as defined in the Contract Documents.

a. The Project Representative may check compaction of backfill and surfacing courses using laboratory testing submittal information supplied by the Contractor. These tests are to determine if compaction requirements are being fulfilled in accordance with the Contract Documents. It is ultimately the responsibility of the Contractor to insure that this level of compaction is constant and met in all locations.

b. Any additional Quality Assurance testing deemed appropriate by the Owner, at the Owner's expense.

6. ENGINEERING INTERPRETATIONS

Timely Engineering decisions on construction activities or results have an important bearing on the Contractor's schedule. When engineering interpretation affects a plan design or specifications change, it should be realized that more than 24 hours may be required to gain the necessary Owner participation in the decision process including time for formal work directive, or change order preparation as required.

7. REJECTED WORK

Any defective work or nonconforming materials or equipment that may be discovered at any time prior to the expiration of the warranty period, shall be removed and replaced with work or materials conforming to the provisions of the Contract Documents, see General Conditions, Article 12. Failure on the part of the Project Representative to condemn or reject bad or inferior work, or to note nonconforming materials or equipment on the Contractors submittals, shall not be construed to imply acceptance of such work. The Owner shall reserve and retain all its rights and remedies at law against the Contractor and its Surety for correction of any and all latent defects discovered after the guarantee period (MCA 27-2-208).

Only the Project Representative will have the authority to reject work which does not conform to the Contract Documents.

8. UTILITIES

The exact locations of existing utilities that may conflict with the work are not precisely known. It shall be the Contractor's responsibility to contact the owners of the respective utilities and arrange for field location services. **One Call Locators, 1-800-424-5555**

The Contract Documents may show utility locations based on limited field observation and information provided to the Project Representative by others. **The Project Representative cannot guarantee their accuracy.** The Contractor shall immediately notify the Project Representative of any discrepancies with utility locations as shown on the Contract Drawings and/or their bury depths that may in any way affect the intent of construction as scoped in these specifications.

There will be no separate payment for exploratory excavation required to locate underground utilities.

8.1 Notification. The Contractor shall contact, in writing, all public and private utility companies that may have utilities encountered during excavation. The notification includes the following information:

a. The nature of the work that the Contractor will be performing.
b. The time, date and location that the Contractor will be performing work that may conflict with the utility.
c. The nature of work that the utility will be required to perform such as moving a power pole, supporting a pole or underground cable, etc.
d. Requests for field location and identification of utilities.

A copy of the letter of notification shall be provided to the Project Representative. During the course of construction, the Contractor shall keep the utility companies notified of any change in schedule, or nature of work that differs from the original notification.

8.2 Identification. All utilities that may conflict with the work shall be the Contractor's responsibility to locate before any excavation is performed. Field markings provided by the utility companies shall be preserved by the Contractor until actual excavation commences. All utility locations on the Drawings should be considered approximate and should be verified in the field by the Contractor. The Contractor shall also be responsible for locating all utilities that are not located on the Drawings.

Utilities are depicted on the Contract Documents in accordance with their achieved “Quality Levels,” as defined in the American Society of Civil Engineer’s Document, ASCE 38, “Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data.” Reliance upon these data for risk management purposes during bidding does not relieve the Contractor, or Utility Owner from following all applicable utility damage prevention statutes, policies, and/or procedures during construction. It is important that the Contractor investigates and understands the scope of work between the project Owner and Engineer regarding scope of limits of the utility investigations leading to these utility depictions. Definitions of Quality Levels are described as follows:

a. "QUALITY LEVEL A" – (QLA): LOCATING THROUGH EXCAVATION. QLA data are highly accurate and are obtained by surveying an exposed utility. As such, both horizontal and vertical data are recorded. Survey accuracies are typically set at 15mm (1/2-inch) vertically, and to project survey standards horizontally (typically the same as for topography features), although these survey accuracies and precisions are generally left to the owner to specify in a scope of work. In addition to the applicable standard of care and any other additional standards imposed by commercial indemnity clauses, the accuracy of these location data is also typically guaranteed. Other data typically characterized include material type, surface elevation, utility size/capacity, outside dimensions, and configurations, soil type, and utility condition.

b. "QUALITY LEVEL B" – (QLB): DESIGNATING. QLB information is obtained through the application of appropriate surface geophysical methods to identify the existence and approximate horizontal location of utilities (a utility's "designation") within the project limits, followed by survey, mapping, and professional review of that designation. Underground utilities are identified by interpretation of received signals generated either actively or passively, and through correlating these received signals with visible objects (QLC) and record data (QLD) to determine function. Designated utilities that can't be identified are labeled as "unknowns." Although approximate has no accuracy associated with it, generally the locations are within inches rather than feet. The more utility congested the area or the deeper the utilities, the less likely it is that the designations will achieve that accuracy. These designations are then surveyed to project accuracies and precisions, typically third-order accuracy similar to other topography features. Note that surveying existing one-call marks does not lead to QLB data, since the genesis of the marks was not under the direct responsible charge of the professional certifying the QLB depictions, and one-call generally does not address unknown utilities, privately owned utilities, utilities without records, abandoned utilities, and so on. Nor does the professional have knowledge of the field technician's qualifications, training, and level of effort.

c. "QUALITY LEVEL C" – (QLC): SURFACE VISIBLE FEATURE SURVEY. QLC builds upon the QLD information by adding an independent detailed topography site survey for surface-visible appurtenances of subsurface utilities including but not limited to fire hydrants, valves, risers, and manholes. Professional judgment is used to correlate the QLD data to the surveyed features, thus increasing the reliability of both utility location and existence. It is a function of the professional to determine when records and features do not agree and resolve discrepancies. This may be accomplished

by depiction of a utility line at quality level D, effectively bypassing or disregarding (but still depicting) a surveyed structure of unknown origin. Additional resolution may result from consultation with utility owners.

d. “QUALITY LEVEL D" – (QLD): EXISTING RECORDS RESEARCH. QLD is the most basic level of information. Information is obtained from the review and documentation of existing utility records, verbal accounts, and/or one-call markings (to determine the existence of major active utilities and their approximate locations).

8.3 Removal or Relocation of Utilities. All electric power, street lighting, gas, telephone, and television utilities that require relocation will be the responsibility of the utility owner. A request for extending the specified contract time will be considered if utility owners cause delays.

8.4 Public Utilities. Water, sewer, storm drainage, and other utilities owned and operated by the public entities shall, unless otherwise specifically requested by the utility owner, be removed, relocated, supported or adjusted as required by the Contractor at the Contractor's expense. All such work shall be in accordance with these Contract Documents, or the Owner's Standard Specifications or written instructions when the work involved is not covered by these Specifications.

8.5 Other Utilities. Utilities owned and operated by private individuals, railroads, school districts, associations, or other entities not covered in these Special Provisions shall, unless otherwise specifically requested by the utility owner, be removed, relocated, supported or adjusted as required by the Contractor at the Contractor's expense. All work shall be in accordance with the utility owner's directions, or by methods recognized as being the standard of the industry when directions are not given by the owner of the utility.

8.6 Damage to Utilities and Private Property. The Contractor shall protect all utilities and private property and shall be solely responsible for any damage resulting from his construction activities. The Contractor shall hold the Owner and Project Representative harmless from all actions resulting from his failure to properly protect utilities and private property. All damage to utilities shall be repaired at the Contractor's expense to the full satisfaction of the owner of the damaged utility or property. The Contractor shall provide the Owner with a letter from the owner of the damaged utility or property stating that it has been repaired to the utility owner's full satisfaction.

8.7 Structures. The Contractor shall exercise every precaution to prevent damage to existing buildings or structures in the vicinity of his work. In the event of such damages, he shall repair them to the satisfaction of the owner of the damaged structure at no cost to the Owner.

8.8 Overhead Utilities. The Contractor shall use extreme caution to avoid a conflict, contact, or damage to overhead utilities, such as power lines, streetlights, telephone lines, television lines, poles, or other appurtenances during the course of construction of this project.

8.9 Buried Gas Lines. The Contractor shall provide some means of overhead support for buried gas lines exposed during trenching to prevent rupture in case of trench caving.

8.10 Pavement Removal. Where trench excavation or structure excavation requires the removal of curb and gutter, concrete sidewalks, or asphalt or concrete pavement, the pavement or concrete shall be cut in a straight line parallel to the edge of the excavation by use of a spade-bitted air hammer, concrete saw, colter wheel, or similar approved equipment to obtain a straight, square clean break. Pavement cuts shall be 2 feet wider than the actual trench opening.

8.11 Survey Markers and Monuments. The Contractor shall use every care and precaution to protect and not disturb any survey marker or monuments, such as those that might be located at lot or block corners, property pins, intersection of street monuments or addition line demarcation. Such protection includes markings with flagged high lath and close supervision. No monuments shall be disturbed without prior approval of the Project Representative. Any survey marker or monument disturbed by the Contractor during the construction of the project shall be replaced at no cost to the Owner by a licensed land surveyor.

8.12 Temporary Utilities. The Contractor shall provide all temporary electrical, lighting, telephone, heating, cooling, ventilating, water, sanitary, fire protection, and other utilities and services necessary for the performance of the work. All fees, charges, and other costs associated therewith shall be paid for by the Contractor.

9. CONSTRUCTION SAFETY

The Contractor shall be solely and completely responsible for conditions of the jobsite, including safety of all persons (including employees and subcontractors) and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. Safety provisions shall conform to U.S. Department of Labor (OSHA), and all other applicable federal, state, county, and local laws, ordinances, codes, and regulations. Where any of these are in conflict, the more stringent requirement shall be followed. The Contractor's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve them from compliance with the

obligations and penalties set forth therein, see General Conditions, Article 10.

10. CONSTRUCTION LIMITS AND AREAS OF DISTURBANCE

10.1 Construction Limits. Where construction easements or property lines, are not specifically called out on the Contract Documents, limit the construction disturbance to ten (10) feet, when measured from the edge of the slope stake grading, or to the adjacent property line, whichever is less. Disturbance and equipment access beyond this limit is not allowed without the written approval of both the Project Representative and the Owner of the affected property. If so approved, disturbance beyond construction limits shall meet all requirements imposed by the landowner; this includes existing roads used and/or improved as well as the construction of new access roads. Special construction, reclamation, or post-construction reclamation or other closure provisions required by the landowner on access roads beyond the construction limits shall be performed by the Contractor at no additional cost to the Owner.

10.2 Areas of Disturbances. Approved areas of disturbance are those areas disturbed by construction activities within the construction limits and along designated or approved access routes. Such areas may require reclamation and revegetation operations, including grading to the original contours, top soiling with salvaged or imported topsoil, seeding, fertilizing, and mulching as specified herein. Other areas that are disturbed by the Contractor's activities outside of the limits noted above will be considered as site damage or unapproved areas of disturbance, see General Conditions, Articles 3 and 10. This includes areas selected by the Contractor outside the defined construction limits for mobilization, offices, equipment, or material storage.

11. DECONTAMINATE CONSTRUCTION EQUIPMENT

Power wash all construction equipment entering the project site to prevent the spread of noxious weeds and aquatic invasive species. This applies to all FWP projects, whether or not individual construction permits specifically address cleaning of equipment.

12. TREE PROTECTION AND PRESERVATION

The Contractor and the Owner shall individually inspect all trees within the project construction limits prior to construction. The Owner shall determine which trees are to be removed and which trees are to be preserved. Construction of the grading, utilities and various roadway facilities must not significantly damage the trees root system or hinder it’s chances for survival. Reasonable variations from the Contract Documents, as directed by the Project Representative, may be employed to ensure the survival of trees.

13. CONSTRUCTION SURVEYS

The Contractor will be responsible for all layout and construction staking utilizing the Project Representative's existing control and coordinate data for the project. Dimensions and elevations indicated in layout of work shall be verified by the Contractor. Discrepancies between Drawings, Specifications, and existing conditions shall be referred to the Project Representative for adjustment before work is performed. The Project Representative may set location and grade stakes prior to construction; however, it is ultimately the responsibility of the Contractor to check and verify all construction staking for the project.

Existing survey control (horizontal and vertical) has been set for use in the design and ultimately the construction of these improvements. A listing of the coordinates and vertical elevation for each of these control points may be included in the project drawings.

The Contractor will be responsible for preserving and protecting the survey control until proper referencing by the Contractor has been completed. Any survey control obliterated, removed, or otherwise lost during construction will be replaced at the Contractor's expense.

Contractor shall be aware of property pins and survey monuments. Damage to these pins will require replacement of such by a registered land surveyor at no cost to the owner.

The Contractor shall provide construction staking from the Contractor's layouts and the control points. Contractor's construction staking includes at a minimum:

1. Slope stakes located at critical points as determined by the Project Representative.
2. Blue tops every longitudinally and transversely for subgrade and crushed base to verify finish grading of course.
3. Location and grade stakes for drainage features and retaining walls.
4. Location stakes for roadside safety items, permanent and temporary traffic control, and misc. items as determined by the Project Representative.

Original field notes, computations and other records take by the Contractor for the purpose of quantity and progress surveys shall be furnished promptly to the Project Representative and shall be used to the extent necessary in determining the proper amount of payment due to the Contractor.

14. MATERIAL SOURCES AND CONSTRUCTION WATER

The Contractor shall be responsible for locating all necessary material sources, including aggregates, earthen borrow and water necessary to complete the work. The Contractor shall be responsible for meeting all transportation and environmental regulations as well as

paying any royalties. The Contractor shall provide the Project Representative with written approvals of landowners from whom materials are to be obtained, prior to approval.

The Contractor may use materials from any source, providing the materials have been tested through representative samples and will meet the Specifications.

Water for compaction efforts shall be supplied by the Contractor.

15. MATERIALS SALVAGE AND DISPOSAL

Notify the Owner for any material salvaged from the project site not identified in the Contract Documents. The Owner reserves the right to maintain salvaged material at the project site, compensate the Contractor for relocation of salvaged material, or agreed compensation to Owner for material salvaged by the Contractor.

Haul and waste all waste material to a legal site and obey all state, county, and local disposal restrictions and regulations.

16. STORED MATERIALS

Contractor shall use an approved storage area for materials. Materials and/or equipment purchased by the Contractor may be compensated on a monthly basis. For compensation, provide the Project Representative invoices for said materials, shop drawings and/or submittals for approval, and applicable insurance coverage, see General Conditions, Article 9.

17. STAGING AND STOCKPILING AREA

Contractor shall use staging and stockpiling sites for to facilitate the project as approved by the Owner. Contract Documents may show approved staging and stockpiling locations. Notify Owner within 24 hours for approval of staging and stockpiling sites not shown on the Contract Drawings.

18. SECURITY

The Contractor shall provide all security measures necessary to assure the protection of equipment, materials in storage, completed work, and the project in general.

19. CLEANUP

Cleanup for each item of work shall be fully completed and accepted before the item is considered final. If the Contractor fails to perform cleanup within a timely manner the Owner reserves the right to withhold final payment.

20. ACCESS DURING CONSTRUCTION

Provide access to all public and private roadways and approaches within the project throughout the construction period.

21. CONSTRUCTION TRAFFIC CONTROL

The Contractor is responsible for providing safe construction and work zones within the project limits by implementing the rules, regulations, and practices of the Manual on Uniform Traffic Control Devices, current edition.

22. SANITARY FACILITIES

Provide on-site toilet facilities for employees of Contractor and Sub-Contractors and maintain in a sanitary condition.

23. CONTRACT CLOSEOUT

The Contractor's Superintendent shall maintain at the project site, a "Record Set of Drawings" showing field changes, as-built elevations, unusual conditions encountered during construction, and such other data as required to provide the Owner with an accurate "as constructed" set of record drawings. The Contractor shall furnish the "Record Set" to the Project Representative following the Final Inspection of the Project.

The Contractor's final payment will not be processed until the "Record Set" of drawings are received and approved by the Project Representative.

24. MEASUREMENT AND PAYMENT

Review these Contract Documents for additional Measurement and Payment specifications for definitions. Quantities are listed on the Bid Proposal for Payment Items. Additional material quantities, volumes, and measurements may be shown on the Contract Document drawings and/or specifications.

Unit Price quantities and measurements shown on the Bid Proposal are for bidding and contract purpose only. Quantities and measurements supplied, completed for the project, and verified by the Project Representative shall determine payment. Each unit price will be deemed to include an amount considered by the Contractor to be adequate to cover Contractor's overhead and profit for each bid item.

The Owner or Contractor may make a Claim for an adjustment in Contract Unit Price if the quantity of any item of Unit Price Work performed by the Contractor differs materially and/or significantly (increase or decrease by 50%) from the estimated quantity indicated on the Bid Proposal.

Lump sum bid item quantities will not be measured. Payment for these lump sum bid proposal items will be paid in full amount listed on the Bid Proposal when accepted by the Project Representative, unless specified otherwise.

Re-bid - August 2017

Washoe Park Trout Hatchery
Isolation Building Facility Project
Montana Fish, Wildlife and Parks
Anaconda, MT 59711

FWP # 7153604

Contact the following representatives for technical questions regarding the plans and specifications:

Architect:

William Nerison, A.I.A.
WRN Architects
3112 South Third West
Missoula, MT 59804
(406) 829-0788

Structural:

Tom Beaudette
WBeaudette Consulting Engineers
113 East Main
Missoula, MT 59802
(406) 721-7315

Mechanical:

Ray Dawes
Dawes Consulting and Design
48 Hibbard Way
Helena, MT 59601
(406) 441-4000

Electrical and Plumbing:

Ray Dawes
Dawes Consulting and Design
48 Hibbard Way
Helena, MT 59601
(406) 441-4000

Geotechnical: **Owner provided report dated April 19, 1991**

Robert Peccia and Associates
825 Custer Avenue
Helena, MT 59604
(406) 447-5000

Re-bid - August 2017

Washoe Park Trout Hatchery
Isolation Building Facility Project
Montana Fish, Wildlife and Parks
Anaconda, MT 59711

FWP # 7153604

Technical Specifications

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY OF WORK

A. Project: **Re-bid** Washoe Park Hatchery Isolation Building Facility Project

B. Owner: Montana Fish, Wildlife and Parks

C. Architect: WRN Architects, 3112 South Third Street West, Missoula, MT. 59804

D. Contractor: to be selected by process of competitive bids.

E. The Work: the work consists of the construction of a new, one story, 900 s.f. building of conventional wood framing on a concrete slab with drainage troughs and UV sterilization equipment. Electrical service is available in the main hatchery building just west of the new structure. An existing natural gas is located near the southwest side of the main building and two sources of water need to be provided. Well water and spring water mains run along the south side of the main building and shall be extended to the new facility. Effluent from the new facility will be treated with UV sterilization provided by FWP and installed by the general contractor. All treated effluent will be drained to an existing drain line north of the subject building and then back to the adjacent creek. FWP has received DNRC and DEQ permission for the proposed method of effluent contribution.

F. Owner-Furnished Items: The following products will be furnished by Owner and shall be installed by Contractor as part of the Work:

1. No
Owner-Furnished items will be included by the Owner for this project.

G. Work Under Other Contracts:

1. No work under other contracts is under consideration at this time.

1.2 WORK RESTRICTIONS

A. Contractor's Use of Premises: During construction, Contractor will have full use of site indicated. Contractor's use of premises is limited only by Owner's right to perform work or employ other contractors on portions of Project and as follows:

1. Owner will not occupy premises during construction. Permission from the owner shall be obtained for work to be performed at times other than 7 am to 5 pm, Monday through Friday.

END OF SECTION 011000

SECTION 012000 - PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 ALLOWANCES

A. No allowances will be used during the execution of this project.

1.2 ALTERNATES

1. Refer to the General Conditions as provided by the Owner.

1.3 UNIT PRICES

1. Refer to the General Conditions as provided by the Owner.

1.4 CONTRACT MODIFICATION PROCEDURES

1. Refer to the General Conditions as provided by the Owner.

1.5 PAYMENT PROCEDURES

1. Refer to the General Conditions as provided by the Owner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 012000

SECTION 013000 - ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 PROJECT MANAGEMENT AND COORDINATION

1. Refer to the General Conditions as provided by the Owner.

1.2 SUBMITTAL PROCEDURES

1. Refer to the General Conditions as provided by the Owner.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

1. Refer to the General Conditions as provided by the Owner.

2.2 INFORMATION SUBMITTALS

1. Refer to the General Conditions as provided by the Owner.

PART 3 - EXECUTION

3.1 SUBMITTAL REVIEW

1. Refer to the General Conditions as provided by the Owner.

3.2 CONSTRUCTION SCHEDULE

1. Refer to the General Conditions as provided by the Owner.

END OF SECTION 013000

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS
1. Refer to the General Conditions as provided by the Owner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 014000

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Use Charges: Cost or use charges for temporary facilities shall be included in the Contract Sum.

B. Use water and electric power from Owner's existing system without metering and without payment of use charges. Location of available water and power to be identified by hatchery manager.

C. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

PART 2 - PRODUCTS

2.1 EQUIPMENT

A. Heating Equipment: Unless Owner authorizes use of permanent heating system, provide vented, self-contained heaters with thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited unless specified under special circumstances and approved by architect.
2. Heating Units: Listed and labeled, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 3 - EXECUTION

3.1 TEMPORARY UTILITIES

A. General: Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

C. Sanitary Facilities: Use of Owner's existing toilet facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

D. Heating: Provide temporary heating required for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

E. Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

3.2 TEMPORARY SUPPORT FACILITIES

A. Provide field offices, storage and fabrication sheds, and other support facilities as necessary for construction operations.

B. Provide waste-collection containers in sizes adequate to handle waste from construction operations. Collect waste daily and, when containers are full, legally dispose of waste off-site. Comply with requirements of authorities having jurisdiction.

1. Contractor is to participate in any waste recycling that the Allied Waste has available.

C. Install project identification and other signs in locations indicated in construction documents and as required by other regulatory agencies to inform the public and persons seeking entrance to Project.

3.3 TEMPORARY SECURITY AND PROTECTION FACILITIES

A. Provide temporary environmental protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

B. Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

C. Provide temporary enclosures for protection of construction and workers from inclement weather and for containment of heat.

D. Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

E. Furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.

F. Install and maintain temporary fire-protection facilities. Comply with NFPA 241.

3.4 TERMINATION AND REMOVAL

A. Temporary Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.

B. Remove temporary facilities and controls no later than Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

B. Product Substitutions: Substitutions include changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor after award of the Contract.

1. Submit three copies of each request for product substitution.
2. Submit requests within ten days after the Notice to Proceed.
3. Do not submit unapproved substitutions on Shop Drawings or other submittals.
4. Identify product to be replaced and show compliance with requirements for substitutions. Include a detailed comparison of significant qualities of proposed substitution with those of the Work specified, a list of changes needed to other parts of the Work required to accommodate proposed substitution, and any proposed changes in the Contract Sum or the Contract Time should the substitution be accepted.
5. Architect will review the proposed substitution and notify Contractor of its acceptance or rejection by.

C. Comparable Product Requests:

1. Submit three copies of each request for comparable product. Do not submit unapproved products on Shop Drawings or other submittals.
2. Identify product to be replaced and show compliance with requirements for comparable product requests. Include a detailed comparison of significant qualities of proposed substitution with those of the Work specified.
3. Architect will review the proposed product and notify Contractor of its acceptance or rejection.

D. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Deliver products to Project site in manufacturer's original sealed container or packaging, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
3. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
4. Store materials in a manner that will not endanger Project structure.
5. Store products that are subject to damage by the elements, under cover in a weather-tight enclosure above ground, with ventilation adequate to prevent condensation.

E. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

A. Provide products that comply with the Contract Documents, are undamaged, and are new at the time of installation.

1. Provide products complete with accessories, trim, finish, and other devices and components needed for a complete installation and the intended use and effect.
2. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

B. Product Selection Procedures:

1. Where Specifications name a single product or manufacturer, provide the item indicated that complies with requirements.
2. Where Specifications include a list of names of products or manufacturers, provide one of the items indicated that complies with requirements.
3. Where Specifications include a list of names of products or manufacturers, accompanied by the term "available products" or "available manufacturers," provide one of the named items that complies with requirements. Comply with provisions for "comparable product requests" for consideration of an unnamed product.
4. Where Specifications name a product as the "basis-of-design" and include a list of manufacturers, provide the named product. Comply with provisions for "comparable product requests" for consideration of an unnamed product by the other named manufacturers.
5. Where Specifications name a single product as the "basis-of-design" and no other manufacturers are named, provide the named product. Comply with provisions for "comparable product requests" for consideration of an unnamed product by another manufacturer.

C. Unless otherwise indicated, Architect will select color, pattern, and texture of each product from manufacturer's full range of options that includes both standard and premium items.

END OF SECTION 016000

SECTION 017000 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 CLOSEOUT SUBMITTALS

A. Record Drawings: Maintain a set of prints of the Contract Drawings as Record Drawings. Mark to show actual installation where installation varies from that shown originally.

1. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

B. Operation and Maintenance Data: Submit one copy of manual. Organize data into three-ring binders with identification on front and spine of each binder, and envelopes for folded drawings. Include the following:

1. Manufacturer's operation and maintenance documentation.
2. Maintenance and service schedules.
3. Maintenance service contracts.
4. Emergency instructions.
5. Spare parts list.
6. Wiring diagrams.
7. Copies of warranties.

PART 2 - EXECUTION

2.1 EXAMINATION AND PREPARATION

A. Examine substrates and conditions for compliance with manufacturer's written requirements including, but not limited to, surfaces that are sound, level, plumb, smooth, clean, and free of deleterious substances; substrates within installation tolerances; and application conditions within environmental limits. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to property survey and existing benchmarks.

C. Take field measurements as required to fit the Work properly. Where fabricated products are to be fitted to other construction, verify dimensions by field measurement before fabrication and, when possible, allow for fitting and trimming during installation.

2.2 CUTTING AND PATCHING

A. Do not cut structural members or operational elements without prior written approval of Architect.

B. Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

C. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

2.3 INSTALLATION

A. Comply with manufacturer's written instructions for installation. Anchor each product securely in place, accurately located and aligned with other portions of the Work. Clean exposed surfaces and protect from damage.

B. Clean Project site and work areas daily, including common areas.

2.4 FINAL CLEANING

A. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion:

1. Remove labels that are not permanent.
2. Clean transparent materials, including mirrors. Remove excess glazing compounds. Replace chipped or broken glass.
3. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Sweep concrete floors broom clean.
4. Vacuum carpeted surfaces and wax resilient flooring.
5. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures. Clean light fixtures, lamps, globes, and reflectors.
6. Clean Project site, yard, and grounds, in areas disturbed by construction activities. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds to a smooth, even-textured surface.

2.5 CLOSEOUT PROCEDURES

A. Substantial Completion: Before requesting Substantial Completion inspection, complete the following:

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, maintenance service agreements, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Submit Record Drawings and Specifications, operation and maintenance manuals, property surveys, and similar final record information.
6. Deliver tools, spare parts, extra materials, and similar items.
7. Make final changeover of permanent locks and deliver keys to Owner.
8. Complete startup testing of systems.

9. Remove temporary facilities and controls.
10. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
11. Complete final cleaning requirements, including touchup painting.
12. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will proceed with inspection or advise Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.

C. Request inspection for Final Completion, once the following are complete:

1. Submit a copy of Substantial Completion inspection list stating that each item has been completed or otherwise resolved for acceptance.
2. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

D. Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

E. Submit a written request for final inspection for acceptance. On receipt of request, Architect will proceed with inspection or advise Contractor of unfulfilled requirements. Architect will prepare final Certificate for Payment after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.

2.6 DEMONSTRATION AND TRAINING

A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system. Include a detailed review of the following:

1. Include instruction for basis of system design and operational requirements, review of documentation, emergency procedures, operations, adjustments, troubleshooting, maintenance, and repairs.

END OF SECTION 017000

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 CONFLICT IN SPECIFICATION

A. If conflicting information is revealed during bid or construction the contractor shall confirm the appropriate course of action by first communicating such to the project manager and architect.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Refer to Architectural drawings for specific information.

2.2 MIXES

A. Refer to Architectural drawings for specific information.

PART 3 - EXECUTION

3.1 CONCRETING

A. Construct formwork according to ACI 301 and maintain tolerances and surface irregularities within ACI 347R limits of Class A, 1/8 inch for concrete exposed to view and Class C, 1/2 inch for other concrete surfaces.

B. Place vapor retarder on prepared sub-grade, with joints lapped 6 inches and sealed.

C. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

D. Install construction, isolation, and contraction joints where indicated. Install full-depth joint-filler strips at isolation joints.

E. Place concrete in a continuous operation and consolidate using mechanical vibrating equipment.

F. Protect concrete from physical damage, premature drying, and reduced strength due to hot or cold weather during mixing, placing, and curing.

G. Formed Surface Finish: Smooth-formed finish for concrete exposed to view, coated, or covered by waterproofing or other direct-applied material; rough-formed finish elsewhere.

H. Slab Finishes: Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces. Provide the following finishes:

1. Scratch finish for surfaces to receive mortar setting beds.
2. Float finish for interior steps and ramps and surfaces to receive waterproofing, roofing, or other direct-applied material.
3. Troweled finish for floor surfaces and floors to receive floor coverings, paint, or other thin film-finish coatings.
4. Nonslip-broom finish to exterior concrete platforms, steps, and ramps.

I. Cure formed surfaces by moist curing for at least seven days.

J. Begin curing concrete slabs after finishing. Apply membrane-forming curing and sealing compound to concrete.

K. Contractor will engage a testing agency to perform field tests and to submit test reports.

L. Protect concrete from damage. Repair surface defects in formed concrete and slabs.

END OF SECTION 033000

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 CONFLICTS IN SPECIFICATIONS

A. If conflicting information is revealed during bid or construction the contractor shall confirm the appropriate course of action by first communicating such to the project manager and architect.

1.2 SECTION REQUIREMENTS

A. Submittals: Shop drawings showing details of fabrication and installation shall be submitted to Architect for review.

PART 2 - PRODUCTS

2.1 METALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

B. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type 304.

C. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.

D. Rolled Steel Floor Plate: ASTM A 786/A 786M.

E. Steel Tubing: Cold-formed steel tubing complying with ASTM A 500.

F. Steel Pipe: ASTM A 53, standard weight (Schedule 40), black finish.

G. Slotted Channel Framing: Cold-formed steel channels, 1-5/8 by 1-5/8 inches by **0.0677 inch** thick, complying with MFMA-3.

H. Cast Iron: ASTM A 48/A 48M, Class 30.

I. Aluminum Extrusions: ASTM B 221, Alloy 6063-T6.

J. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, Alloy 6061-T6.

K. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.

2.2 GROUT

A. Non-shrink, Nonmetallic Grout: ASTM C 1107; recommended by manufacturer for exterior applications.

2.3 FABRICATION

A. General: Shear and punch metals cleanly and accurately. Remove burrs and ease exposed edges. Form bent-metal corners to smallest radius possible without impairing work.

B. Welding: Weld corners and seams continuously. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. At exposed connections, finish welds and surfaces smooth with contour of welded surface matching those adjacent.

C. Fabricate steel pipe columns with steel base plates steel and top plates per plans welded to pipe with continuous fillet weld same size as pipe wall thickness. Drill top plates for connection bolts and base plates for anchor bolts per plans.

D. Fabricate pipe bollards per plan.

2.4 STEEL AND IRON FINISHES

A. Hot-dip galvanize steel fabrications at exterior locations.

B. Prepare uncoated ferrous metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning," and paint with a fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Perform cutting, drilling, and fitting required for installing miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack.

B. Fit exposed connections accurately together to form hairline joints.

C. Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

D. Install pipe guards at exposed vertical pipes where not protected by curbs or other barriers. Install by bolting to wall or column with drilled-in expansion anchors.

E. Anchor bollards in concrete and fill solidly with concrete, mounding top surface.

END OF SECTION 055000

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 CONFLICT IN SPECIFICATION

A. If conflicting information is revealed during bid or construction the contractor shall confirm the appropriate course of action by first communicating such to the project manager and architect.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: Provide dressed lumber, S4S, marked with grade stamp of inspection agency.

B. Engineered Wood Products: Acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

2.2 TREATED MATERIALS

A. Preservative-Treated Materials: AWPA C2, except that lumber not in ground contact and not exposed to the weather may be treated according to AWPA C31 with inorganic boron (SBX).

1. Use treatment containing no arsenic or chromium.
2. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
3. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

B. Provide preservative-treated materials for items indicated on Drawings.

2.3 LUMBER

A. Dimension Lumber:

1. Maximum Moisture Content: 15 percent
2. Non-Load-Bearing Interior Partitions: Construction or No. 2 Western woods: WWPA.
3. Framing Other Than Non-Load-Bearing Partitions: Select Structural Hem-Fir, WWPA.
4. Exposed Framing: Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.

    a. Species: As specified for framing other than non-load bearing partitions.
    b. Grade: Select Structural

2.4 ENGINEERED WOOD PRODUCTS

A. Engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be demonstrated by comprehensive testing.

B. Laminated-Veneer Lumber: Manufactured with exterior-type adhesive complying with ASTM D 2559. Allowable design values determined according to ASTM D 5456.

1. Extreme Fiber Stress in bending, edgewise: 2,900 psi for 12-inch nominal depth members

2.5 PLYWOOD BACKING PANELS

A. Telephone and electrical equipment backing panels: Plywood, Exposure 1, C-D Plugged, fire retardant treated, not less than 1/2 inch thick.

2.6 MISCELLANEOUS PRODUCTS

A. Fasteners: Size and type indicated. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

1. Power-Driven Fasteners: CABO NER-272.
2. Bolts: Steel bolts complying with ASTM A 307, Grade A with ASTM A 563 hex nuts and, where indicated, flat washers.

B. Metal Framing Anchors: Structural capacity, type, and size indicated.

1. Use anchors made from hot-dip galvanized steel complying with ASTM A 653/A 653M, G60 coating designation for interior locations where stainless steel is not indicated.
2. Use anchors made from stainless steel complying with ASTM A 666, Type 304 for exterior locations and where indicated.

C. Sill-Sealer: Closed-cell neoprene foam, 1/4 inch thick.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Securely attach rough carpentry to substrates, complying with the following:

1. CABO NER-272 for power-driven fasteners.

2. Published requirements of metal framing anchor manufacturer.
3. Applicable nailing schedules in current International Building Code for given conditions.

END OF SECTION 061000

SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 CONFLICT IN SPECIFICATION

A. If conflicting information is revealed during bid or construction the contractor shall confirm the appropriate course of action by first communicating such to the project manager and architect.

1.2 SECTION REQUIREMENTS

A. Submittals: Model code evaluation reports for treated wood.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: Provide dressed lumber, S4S, marked with grade stamp of inspection agency.

2.2 TREATED MATERIALS

A. Preservative-Treated Materials: AWPA C2, except that lumber not in ground contact and not exposed to the weather may be treated according to AWPA C31 with inorganic boron (SBX).

1. Use treatment containing no arsenic or chromium.
2. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
3. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

B. Provide preservative-treated materials for items indicated on Drawings, and the following:

1. Concealed members in contact with concrete.
2. Wood framing members that are less than 18 inches above the ground.
3. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 LUMBER

A. Dimension Lumber:

1. Maximum Moisture Content: 15 percent.
2. Interior Partition Framing: D.F. or Larch, No. 2 or better, WCLIB, or WWPA
3. Other Framing: D.F. or Larch, No. 2 or better, WCLIB, or WWPA.

B. Exposed Boards: Idaho white lodgepole or ponderosa, NeLMA, NLGA, WCLIB or WWPA with 15 percent maximum moisture content.

C. Concealed Boards: Northern specie, No. 2 common: NLGA; Western woods, Standard: WCLIB; or No. 3 common: WWPA with 15 percent maximum moisture content.

D. Miscellaneous Lumber: Construction, or No. 2 grade with 15 percent maximum moisture content of any species. Provide for nailers, blocking, and similar members.

2.4 PLYWOOD BACKING PANELS

A. Telephone and Electrical Equipment Backing Panels: Plywood, Exposure 1, C-D Plugged, fire-retardant treated, not less than 1/2 inch thick.

2.5 FASTENERS

A. Fasteners: Size and type indicated. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

1. Power-Driven Fasteners: CABO NER-272.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Set miscellaneous rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Securely attach miscellaneous rough carpentry to substrates, complying with the following:

1. CABO NER-272 for power-driven fasteners.
2. "Wood Structural Panel Roof Sheathing Nailing Schedule," in ICBO's Uniform Building Code.

END OF SECTION 061053

SECTION 061600 - SHEATHING

PART 1 - GENERAL

1.1 CONFLICT IN SPECIFICATION

A. If conflicting information is revealed during bid or construction the contractor shall confirm the appropriate course of action by first communicating such to the project manager and architect.

PART 2 - PRODUCTS

2.1 WOOD PANEL PRODUCTS, GENERAL

A. Plywood: DOC PS 1.

B. Oriented Strand Board: DOC PS 2.

2.2 TREATED PLYWOOD

A. Preservative-Treated Plywood: AWPA C9.

1. Use treatment containing no arsenic or chromium.
2. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.

B. Provide preservative treated plywood for items indicated on Drawings and plywood in contact with masonry or concrete or used with roofing, flashing, vapor barriers, and waterproofing.

2.3 WALL SHEATHING

A. Plywood Wall Sheathing: As noted on structural drawings.

B. Oriented-Strand-Board Wall Sheathing: As noted on structural drawings.

2.4 ROOF SHEATHING

A. Plywood Roof Sheathing: As noted on structural drawings.

B. Oriented-Strand-Board Roof Sheathing: As noted on structural drawings.

2.5 MISCELLANEOUS PRODUCTS

A. Fasteners: Size and type indicated.

1. For roof sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
2. Power-Driven Fasteners: CABO NER-272.

B. Weather-Resistant Sheathing Paper:

1. Building Paper: ASTM D 226, Type 1 (No. 15 asphalt-saturated organic felt), un-perforated.
2. Building Wrap: ASTM E 1677, Type I air retarder; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized; and acceptable to authorities having jurisdiction.

C. Sheathing Joint-and-Penetration Treatment Materials:

1. Sealant for Gypsum Sheathing Board: Joint sealant recommended by sheathing manufacturer for application indicated.
2. Sheathing Tape for Gypsum Sheathing Board: Self-adhering glass-fiber tape recommended by sheathing and tape manufacturers for application indicated.
3. Sheathing Tape for Foam-Plastic Sheathing: Pressure-sensitive plastic tape recommended by sheathing manufacturer for sealing joints and penetrations in sheathing.

D. Adhesives for Field Gluing Panels to Framing: APA AFG-01.

E. Flexible Flashing: Adhesive rubberized-asphalt compound, bonded to polyethylene film, with an overall thickness of 0.030 inch.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Securely attach to substrates, complying with the following:

1. CABO NER-272 for power-driven fasteners.

B. Fastening Methods:

1. Wall and Roof Sheathing:

a. Nail or staple to wood framing.
b. Screw to cold-formed metal framing.

2. Underlayment:

a. Nail or staple to substrate.

C. Sheathing Joint-And-Penetration Treatment: Seal sheathing joints according to sheathing manufacturer's written instructions.

D. Building Wrap Installation:

1. Apply building wrap immediately after sheathing is installed.
2. Seal seams, edges, fasteners, and penetrations with tape.
3. Extend into jambs of openings and seal corners with tape.

END OF SECTION 061000

SECTION 062000 - FINISH CARPENTRY

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Samples for hardwood veneer plywood paneling and hardboard paneling.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Lumber: DOC PS 20 and grading rules of inspection agencies certified by American Lumber Standards Committee Board of Review.

B. Softwood Plywood: DOC PS 1.

C. Hardwood Plywood: HPVA HP-1.

D. MDF: ANSI A208.2, Grade 130, made with binder containing no urea-formaldehyde resin.

E. Particleboard: ANSI A208.1, Grade M-2, made with binder containing no urea-formaldehyde resin.

F. Melamine-Faced Particleboard: Particleboard complying with ANSI A208.1, Grade M-2, finished on both faces with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.

2.2 EXTERIOR FINISH CARPENTRY

A. Exterior Lumber Trim: Smooth or Saw-textured, D finish hem-fir.

1. Maximum Moisture Content: 19 percent.

2.3 INTERIOR STANDING AND RUNNING TRIM

A. Interior Hardwood Lumber Trim: Clear, kiln-dried, white maple or birch.

B. Wood Moldings: WMMPA WM 4 made to patterns in WMMPA WM 12 from kiln-dried stock.

1. Softwood Moldings for Transparent Finish: white maple or birch .
2. Moldings for Painted Finish: P-Grade closed-grain hardwood or primed medium-density fiberboard.
3. Chair Rail: WM 297.

2.4 SHELVING AND CLOTHES RODS

A. Shelving: 3/4-inch Melamine-faced particleboard with radiused and filled front edge.

B. Shelf Brackets with Rod Support: BHMA A156.16, B04051; prime-painted formed steel.

2.5 MISCELLANEOUS MATERIALS

A. Fasteners for Exterior Finish Carpentry: hot-dip galvanized steel or aluminum.

B. Glue: Aliphatic-resin, polyurethane, or resorcinol wood glue recommended by manufacturer.

1. Use waterproof resorcinol glue for exterior applications.

C. Adhesive for Cellular PVC Trim: Product recommended by trim manufacturer.

D. Installation Adhesive for Foam Plastic Moldings: Product recommended for indicated use by foam plastic molding manufacturer.

E. Insect Screening for Soffit Vents: integral with soffit.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Condition finish carpentry in installation areas for 24 hours before installing.

B. Prime and back-prime lumber for painted finish exposed on the exterior.

C. Install finish carpentry level, plumb, true, and aligned with adjacent materials. Scribe and cut to fit adjoining work. Refinish and seal cuts.

D. Install standing and running trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Stagger joints in adjacent and related trim. Cope at returns and miter at corners.

E. Nail siding at each stud. Do not allow nails to penetrate more than one thickness of siding, unless otherwise recommended by siding manufacturer. Seal joints at inside and outside corners and at trim locations.

F. Select and arrange paneling for best match of adjacent units. Install with uniform tight joints.

END OF SECTION 062000

SECTION 064013 - EXTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Shop Drawings.

B. Quality Standard: Architectural Woodwork Institute's "Architectural Woodwork Quality Standards." Verify availability of certification in paragraph below with local woodworkers before retaining.

C. Forest Certification: Provide woodwork produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."

PART 2 - PRODUCTS

2.1 MATERIALS

A. Hardboard: AHA A135.4.

B. Softwood Plywood: DOC PS 1.

C. Preservative Treatment: Comply with WDMA I.S.4 for items indicated to receive water-repellent preservative treatment.

D. Fasteners for Exterior Woodwork:

1. Nails: hot-dip galvanized or stainless steel.
2. Screws: hot-dip galvanized or stainless steel.

2.2 EXTERIOR WOODWORK

A. Wood Moisture Content: 10 to 15 percent.

B. Complete fabrication to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

C. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.

D. Exterior Standing and Running Trim: Economy grade, made from any closed-grain hardwood.

E. Exterior Ornamental Work: Premium any closed-grain hardwood.

F. Shop prime woodwork for opaque finish with one coat of specified wood primer.

G. Shop seal woodwork for transparent finish with stain (if required), other required pretreatments, and first coat of specified finish.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install woodwork to comply with referenced quality standard for grade specified.

B. Install woodwork true and straight with no distortions. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.

C. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.

D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Fasten with countersunk concealed fasteners and blind nailing. Use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork.

E. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 36 inches long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.

END OF SECTION 064013

SECTION 071326 - SELF-ADHERING SHEET WATERPROOFING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

B. Installer Qualifications: Authorized, approved, or licensed by waterproofing manufacturer.

PART 2 - PRODUCTS

2.1 WATERPROOFING MATERIALS

A. Rubberized-Asphalt Sheet: 60-mil- thick, self-adhering sheet consisting formulated for application with primer or surface conditioner that complies with VOC limits of authorities having jurisdiction.

1. Products:

a. Quad-lock

b. Tamko

c. Polyguard

d. Superseal

B. Auxiliary Materials: Primer, surface conditioner, liquid membrane, substrate patching membrane, sheet strips, mastic, adhesives, tape, and metal termination bars recommended by waterproofing manufacturer.

1. Primer: Liquid waterborne primer if recommended for substrate.
2. Surface Conditioner: Liquid, waterborne surface conditioner recommended for substrate.
3. Grout: Non-shrink frout as recommended by manufacturer.
4. Flashing: All penetrations and drains must be flashed with same or recommended product.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Clean, prepare, and treat substrates. Provide clean, dust-free, and dry substrates for waterproofing application.

B. Remove oil, form-release agents, curing compounds, and other contaminants or coatings.

C. Remove projections and fill honeycomb, aggregate pockets, holes, and other voids.

D. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks.

E. Apply primer to substrates at required rate as required and allow it to dry.

F. Install self-adhering sheet waterproofing according to manufacturer's written instructions and recommendations in ASTM D 6135.

G. Apply and firmly adhere sheets. Accurately align sheets and maintain uniform 2-1/2-inch-minimum lap widths and end laps. Overlap and seal seams and stagger end laps.

H. Bridge and cover isolation joints and discontinuous deck-to-wall and deck-to-deck joints with overlapping sheet strips. Invert and loosely lay first sheet strip over center of joint. Firmly adhere second sheet strip to first and overlap to substrate.

I. Prepare, prime, and treat inside and outside corners according to ASTM D 6135.

J. Prepare, treat, and seal surfaces at terminations, penetrations, drains, and protrusions according to ASTM D 6135.

K. Repair tears, voids, and lapped seams not complying with requirements. Slit and flatten fishmouths and blisters. Patch with sheets extending 6 inches beyond repaired areas in all directions.

L. Install protection course over waterproofing membrane immediately. Use adhesive or tape applied according to manufacturer's written instructions. Do not penetrate waterproofing.

1. Lap edges and ends of geotextile to maintain continuity.

END OF SECTION 071326

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

B. Surface-Burning Characteristics: ASTM E 84, and as follows:

1. Flame-Spread Index: 25 or less where exposed; otherwise, as indicated in Part 2 "Insulation Products" Article.
2. Smoked-Developed Index: 450 or less.

PART 2 - PRODUCTS

A. Products:

1. Icynene MD-C-200 for C. below

2. Owens Corning “ProPink L77”

3. CertainTeed “CertaSpray”

4. Johs Manville “JM Corbond 3 SPF”

2.2 INSULATION PRODUCTS

A. Cellulosic-Fiber Loose-Fill Insulation: ASTM C 739; chemically treated for flame-resistance, processing, and handling characteristics. Non-formaldehyde type.

B. Glass-Fiber Loose-Fill Insulation: ASTM C 764, Type 1, pneumatic application, with flame-spread index of 25 or less. Non-formaldehyde type.

C. Closed Cell Spray Foam Insulation: ASTM C 518, pneumatic application, with flame-spread index of 25 or less. Non-formaldehyde type.

2.3 ACCESSORIES

A. Vapor Retarder: Polyethylene 6 mils thick. No Retarder required with the application of closed cell spray foam.

B. Eave Ventilation Troughs: Preformed, rigid fiberboard or plastic sheets designed to fit between roof framing members and to provide cross-ventilation between attic spaces and vented eaves.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install insulation in areas and in thicknesses indicated or required to produce R-values indicated. Cut and fit tightly around obstructions and fill voids with insulation.

B. Except for loose-fill insulation and insulation that is friction fitted in stud cavities, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

C. Place loose-fill insulation to comply with ASTM C 1015.

1. Comply with the CIMA's Special Report #3, "Standard Practice for Installing Cellulose Insulation."

D. Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage. Locate seams at framing members, overlap, and seal with tape.

END OF SECTION 072100

SECTION 073113 - ASPHALT SHINGLES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Samples.

B. Identify each bundle of shingles with appropriate markings of UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

1. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A.
2. Wind-Resistance-Test Characteristics: ASTM D 3161 or UL 997, passed.

C. Warranties: Provide standard manufacturer's written warranty, signed by manufacturer agreeing to promptly repair or replace asphalt shingles that fail in materials or workmanship within 25 years from date of Substantial Completion, prorated, with first 5 years nonprorated.

PART 2 - PRODUCTS

2.1 ASPHALT SHINGLES

A. Fiberglass Shingles: ASTM D 3462 and as follows:

1. Laminated-Strip Asphalt Shingles: Laminated, multi-ply overlay construction, mineral-granule surfaced, and self-sealing. Straight cut butt edge.
2. Multitab-Strip Asphalt Shingles: Mineral-granule surfaced and self-sealing. Five tabs, randomly spaced with straight butt edge.

B. Organic-Felt Shingles: ASTM D 225, passing ASTM D 3161 for wind resistance, and as follows:

1. Laminated-Strip Asphalt Shingles: Laminated, multi-ply overlay construction, mineral-granule surfaced, and self-sealing. Straight cut butt edge.
2. Multitab-Strip Asphalt Shingles: Mineral-granule surfaced and self-sealing. Five tabs, randomly spaced with straight butt edge.
3. No-Cutout-Strip Asphalt Shingles: Mineral-granule surfaced, self-sealing, square, and single tab. Straight butt edge.

C. Products:

1. CertainTeed

2. GAF

3. International Roofing Group

4. United Roofing Mfg.

5. Tamko

6. Atlas

2.2 ACCESSORIES

A. Felts: ASTM D 226 or ASTM D 4869, Type II, asphalt-saturated organic felts.

B. Self-Adhering Sheet Underlayment: ASTM D 1970, SBS-modified asphalt; mineral-granule or slip-resisting-polyethylene surfaced; with release paper backing; cold applied.

C. Ridge Vent: Rigid UV-stabilized plastic ridge vent with external deflector baffles; for use under ridge shingles.

D. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.

E. Roofing Nails: Aluminum, stainless-steel, or hot-dip galvanized-steel shingle nails, minimum 0.120-inch diameter, of sufficient length to penetrate 3/4 into solid wood decking or extend at least 1/8 through OSB or plywood sheathing.

F. Sheet Metal Flashing and Trim: Comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim."

1. Sheet Metal: Zinc-coated (galvanized) steel.
2. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual."
3. Drip Edge: Formed sheet metal with at least a 2-inch roof deck flange and a 1-1/2-inch fascia flange with a 3/8-inch drip at lower edge.
4. Open-Valley Flashing: Fabricate with 1-inch- high inverted-V profile at center of valley and equal flange widths of 10 inches .

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with recommendations in ARMA's "Residential Asphalt Roofing Manual" and with asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

B. Apply self-adhering sheet underlayment at eaves and rakes from edges of roof to at least 24 inches inside exterior wall line.

C. Apply self-adhering sheet underlayment at valleys extending 18 inches on each side.

D. Install valleys complying with ARMA and NRCA instructions. Construct sheet metal open valleys.

E. Install metal flashings and other sheet metal to comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim," recommendations in ARMA's "Residential Asphalt Roofing Manual," and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

F. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.

END OF SECTION 073113

SECTION 076100 - SHEET METAL ROOFING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and color Samples.

B. Comply with SMACNA's "Architectural Sheet Metal Manual" unless otherwise indicated.

PART 2 - PRODUCTS

2.1 ROOFING SHEET METALS

A. Metallic-Coated Steel Sheet: Galvanized structural-steel sheet, ASTM A 653/A 653M, or aluminum-zinc alloy-coated structural-steel sheet, ASTM A 792/A 792M, 26 gauge.

1. Finish: Manufacturer's standard fluoropolymer 2-coat system with topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2604.

B. Underlayment: Polyethylene sheeting complying with ASTM D 4397, 40 mils thick or Asphalt-saturated organic felt ASTM D 226, Type II (No. 30.

C. Slip Sheet: Rosin-sized building paper, 5 lb/100 sq. ft.

D. Metal Accessories: Matching sheet metal roofing in finish and material required for a complete weathertight roofing system, including clips, flashings, ridge closure strips, trim, copings, fasciae, gutters, and louvers.

E. Solder for Copper: ASTM B 32, Grade Sn50.

F. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.

G. Solder for Zinc-Tin Alloy-Coated Stainless Steel: ASTM B 32, 100 percent tin.

H. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

I. Snow Guards: Prefabricated, noncorrosive units designed to use with sheet metal roofing and complete with predrilled holes or hooks for anchoring.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install underlayment on roof sheathing under sheet metal roofing unless otherwise recommended by metal roofing manufacturer.

1. Apply slip sheet over underlayment before installing metal roofing.

B. Anchor roofing securely in place, with provisions for thermal and structural movement. Install with concealed fasteners unless otherwise indicated.

C. Separate dissimilar metals with a bituminous coating or polymer-modified, bituminous sheet underlayment.

D. Coat unpainted back side of metallic-coated steel with bituminous coating where it will contact treated wood.

E. Install work with lines and corners of exposed units true and accurate. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks, considering temper and reflectivity of metal. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant. Fold back sheet metal to form a hem on concealed side of exposed edges unless otherwise indicated.

1. Install cleats to hold sheet metal panels in position. Attach each cleat with two fasteners to prevent rotation.
2. Nail cleats not more than 12 inches o.c. Bend tabs over nails.

F. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of 1-1/2 inches, except where pretinned surface would show in finished Work.

1. Do not solder metallic-coated steel sheet.
2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.

G. Seal joints as shown and as required for leakproof construction. Provide low-slope transverse seams using cleats where backup of moisture may occur.

END OF SECTION 076100

SECTION 074600 - SIDING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Samples.

1. Submit research/evaluation reports from a model code organization acceptable to authorities having jurisdiction.

B. Warranties: Manufacturer's standard from in which siding manufacturer agrees to repair or replace siding that fails in materials or workmanship within 20 years. Failures include, but are not limited to, cracking, deforming, fading, or otherwise deteriorating beyond normal weathering.

PART 2 - PRODUCTS

2.1 SIDING

A. Fiber-Cement Siding: Made from fiber-cement board that complies with ASTM C 1186, Type A, Grade II; is classified as noncombustible according to ASTM E 136; and has a flame-spread index of 25 or less according to ASTM E 84. Factory-primed and finished

1. Products:

a. James Hardie

b. CertainTeed

c. Nichiha

d. Maxtile

2. Horizontal Pattern: Boards with 6 inch exposure in plain style with rough sawn or wood-grain texture.
3. Vertical Pattern: 48-inch- wide sheets with wood-grain texture.

2.2 SOFFIT

A. Fiber-Cement Soffit: Made from fiber-cement board that complies with ASTM C 1186, Type A, Grade II; is classified as noncombustible according to ASTM E 136; and has a flame-spread index of 25 or less according to ASTM E 84. Factory-primed and finished.

1. Products:

a. James Hardie

b. CertainTeed

c. Nichiha

d. Maxtile

2. Pattern: 16-inch- wide sheets with smooth texture.
3. Ventilation: Provide perforated soffit, unless otherwise indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install vinyl siding, soffit, and accessories according to ASTM D 4756.

B. Install aluminum siding, soffit, and accessories according to AAMA 1402.

END OF SECTION 074600

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Samples.

B. Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

C. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.

PART 2 - PRODUCTS

2.1 SHEET METAL

A. Aluminum Sheet: ASTM B 209, Alloy 3003, 3004, 3105, or 5005, temper suitable for forming and structural performance required, but not less than H14; not less than 0.032 inch thick; and with mill finish.

1. Fluoropolymer Two-Coat System: Manufacturer's standard system with topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2604.

B. Zinc-Tin Alloy-Coated Stainless Steel: ASTM A 240/A 240M, Type 304, dead-soft, fully annealed stainless-steel sheet, coated on both sides with a zinc-tin alloy (50 percent zinc, 50 percent tin); not less than 0.016 inch thick.

2.2 FLASHING AND TRIM

A. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.

2.3 ACCESSORIES

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.

B. Solder for Copper: ASTM B 32, Grade Sn50.

C. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.

D. Solder for Zinc-Tin Alloy-Coated Stainless Steel: ASTM B 32, 100 percent tin.

E. Solder for Lead: ASTM B 32, Grade Sn50.

F. Butyl Sealant: ASTM C 1311, solvent-release type, for expansion joints with limited movement.

G. Asphalt Mastic: SSPC-Paint 12, asbestos free, solvent type.

H. Roofing Cement: ASTM D 4586, Type I, asbestos free, asphalt based.

I. Slip Sheet: Rosin-sized paper, minimum 3 lb/100 sq. ft.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with SMACNA's "Architectural Sheet Metal Manual." Allow for thermal expansion; set true to line and level. Install Work with laps, joints, and seams permanently watertight and weatherproof; conceal fasteners where possible.

1. Roof-Edge Flashings: Secure metal flashings at roof edges according to FMG Loss Prevention Data Sheet 1-49 for specified wind zone.

B. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

C. Fabricate nonmoving seams in sheet metal with flat-lock seams. For metals other than aluminum, tin edges to be seamed, form seams, and solder.

1. Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of 1-1/2 inches, unless pretinned surface would show in finished Work.

D. Separation: Separate noncompatible metals or corrosive substrates with a coating of asphalt mastic or other permanent separation.

END OF SECTION 076200

SECTION 077200 - ROOF ACCESSORIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and color Samples.

B. Sheet Metal Standard: Comply with SMACNA's "Architectural Sheet Metal Manual."

PART 2 - PRODUCTS

2.1 MATERIALS

A. Metallic-Coated Steel Sheet: Galvanized steel, ASTM A 653/A 653M, G90, or aluminum-zinc alloy-coated steel, ASTM A 792/A 792M, AZ50.

1. Prepainted, Metallic-Coated Steel Sheet: Coil-coated with manufacturer's standard 2-coat, thermocured system consisting of inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight.

B. Aluminum Sheet: ASTM B 209, alloy and temper recommended by manufacturer for type of use and finish. Coil-coat finish as follows:

1. Factory Prime Coating: Pretreatment and white or light-colored, factory-applied, baked-on epoxy primer coat; with a minimum dry film thickness of 0.2 mil.
2. Baked-Enamel Finish: Thermosetting, modified-acrylic enamel primer/topcoat system complying with AAMA 2603 except with a minimum dry film thickness of 1.5 mils, medium gloss.
3. High-Performance Organic Finish: Manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Installation: Unless otherwise indicated, install roof accessory items according to construction details of NRCA's "Roofing and Waterproofing Manual." Coordinate with installation of roof deck, vapor barriers, roof insulation, roofing, and flashing to ensure combined elements are secure, waterproof, and weathertight.

END OF SECTION 077200

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and color Samples.

B. Environmental Limitations: Do not proceed with installation of joint sealants when ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 deg F.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS

A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions.

B. Sealant for Use in Building Expansion Joints:

1. Single-component, neutral-curing silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; Uses T, M, and O, with the additional capability to withstand 50 percent movement in both extension and compression for a total of 100 percent movement.

C. Sealant for General Exterior Use Where Another Type Is Not Specified, One of the Following:

1. Single-component, non-sag polysulfide sealant, ASTM C 920, Type S; Grade NS; Class 12-1/2; Uses NT, M, G, A, and O.
2. Single-component, neutral-curing silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; Uses T, NT, M, G, A, and O.
3. Single-component, non-sag urethane sealant, ASTM C 920, Type S; Grade NS; Class 25; and Uses NT, M, A, and O.

D. Sealant for Interior Use at Perimeters of Door and Window Frames:

1. Latex sealant, single-component, non-sag, mildew-resistant, paintable, acrylic-emulsion sealant complying with ASTM C 834.

E. Acoustical Sealant for Exposed Interior Joints:

1. Non-sag, paintable, non-staining, latex sealant complying with ASTM C 834.

F. Acoustical Sealant for Concealed Joints:

1. Nondrying, non-hardening, non-skinning, non-staining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.

2.2 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer.

B. Cylindrical Sealant Backings: ASTM C 1330, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with manufacturers specifications.

END OF SECTION 079200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Shop Drawings.

B. Comply with ANSI/SDI A250.8.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cold-Rolled Steel Sheets: ASTM A 1008/A 1008M, suitable for exposed applications.

B. Hot-Rolled Steel Sheets: ASTM A 1011/A 1011M, free of scale, pitting, or surface defects.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, with G4 or A40 metallic coating.

D. Frame Anchors: ASTM A 591/A 591M, 4OZ coating designation; mill phosphatized.

1. For anchors built into exterior walls, sheet steel complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

2.2 HOLLOW METAL DOORS AND FRAMES

A. Products:

1. Ceco Corporation

2. Curries Mfr. Inc.

3. Republic

4. Steelcraft

B. Doors: Complying with ANSI 250.8 for level and model and ANSI A250.4 for physical-endurance level indicated, 1-3/4 inches thick unless otherwise indicated.

1. Interior Doors: Level 2 and Physical Performance Level B, (Heavy Duty).
2. Exterior Doors: Level 2 and Physical Performance Level B, (Heavy Duty).metallic-coated steel sheet faces.

a. Thermal-Rated (Insulated) Doors: Where indicated, provide doors with thermal-resistance value (R-value) of not less than R-15 for doors without lites when tested according to ASTM C 1363.

3. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as door face sheets.

C. Frames: ANSI A250.8; conceal fastenings unless otherwise indicated.

1. Steel Sheet Thickness for Interior Doors: 0.042 inch.
2. Steel Sheet Thickness for Exterior Doors: 0.053 inch.
3. Fabricate interior frames with mitered or coped corners knocked down for field assembly.
4. Fabricate exterior frames from metallic-coated steel sheet, with mitered or coped and continuously welded corners.
5. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.
6. Frame Anchors: Not less than 0.042 inch thick.

D. Glazing Stops: Non-removable stops on outside of exterior doors and on secure side of interior doors; screw-applied, removable, glazing stops on inside, fabricated from same material as door face sheet in which they are installed.

E. Door Silencers: Three on strike jambs of single-door frames and two on heads of double-door frames.

F. Prepare doors and frames to receive mortised and concealed hardware according to ANSI A250.6 and ANSI A115 Series standards.

G. Reinforce doors and frames to receive surface-applied hardware.

H. Prime Finish: Manufacturer's standard, factory-applied coat of lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install hollow metal frames to comply with ANSI/SDI A250.11.

1. Fire-Rated Frames: Install according to NFPA 80.

B. Install doors to provide clearances between doors and frames as indicated in ANSI/SDI A250.11.

C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying rust-inhibitive primer. Use galvanizing repair paint for metallic coated surfaces.

END OF SECTION 081113

SECTION 085313 - VINYL WINDOWS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and color Samples.

B. Quality Standard: Comply with AAMA/NWWDA 101/I.S.2/NAFS.

1. Provide AAMA- or WDMA-certified vinyl windows with an attached label.

PART 2 - PRODUCTS

2.1 VINYL WINDOWS

A. Products:

1. Marvin
2. Milgard
3. Jeld-Wen
4. Anderson
5. CertainTeed

B. Window Types: As indicated on Drawings.

C. Performance Class: LC.

D. Performance Grade: 25.

E. Condensation-Resistance Factor: 52 per AAMA 1503.

F. Thermal Transmittance: Whole-window U-factor not more than 0.40 Btu/sq. ft. x h x deg F at 15-mph wind velocity and winter temperatures per AAMA 1503.

G. Solar Heat-Gain Coefficient: Whole-window SHGC not more than 0.50, per NFRC 200.

H. Trim: Provide indicated trim, matching material and finish of frame members.

I. Provide push-bar operators or gear-type rotary operators with folding handles for awning windows.

J. Equip units with vinyl-coated, glass-fibermesh insect screens at operable sashes.

K. Equip units with removable grilles as indicated, attach to inside face of each lite.

L. Window Color: White.

M. Glaze units with low-e coated, sealed insulating glass, complying with Division 08 Section "Glazing."

PART 3 - EXECUTION

3.1 INSTALLATION

A. Set units level, plumb, and true to line, without warp or rack of frames and panels. Provide proper support and anchor securely in place.

B. Set sill members in bed of sealant or with gaskets, as indicated, to provide weathertight construction.

C. Adjust operating panels, screens, and hardware to provide a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.

D. Clean glass and vinyl surfaces immediately after installing windows. Remove nonpermanent labels from glass surfaces.

END OF SECTION 085313

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Hardware schedule and keying schedule.

B. Deliver keys to Owner.

C. Fire-Resistance-Rated Assemblies: Provide products that comply with NFPA 80 and are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for applications indicated. On exit devices provide label indicating "Fire Exit Hardware."

PART 2 - PRODUCTS

2.1 HARDWARE

A. Manufacturers: The following manufacturers are listed to establish a level of quality for substitutions.

1. Stanley
2. Schlage
3. LCN
4. Pemco
5. Trimco
6. NGP
7. Horton
8. Von Duprin

B. Hinges:

1. Brass/bronze hinges with stainless-steel pins for exterior.
2. Nonremovable hinge pins for exterior and public interior exposure.
3. Ball-bearing hinges for doors with closers and entry doors.
4. 2 hinges for 1-3/8-inch- thick wood doors.
5. 3 hinges for 1-3/4-inch- thick doors 90 inches or less in height; 4 hinges for doors more than 90 inches in height.

C. Locksets and Latchsets:

1. BHMA A156.2, Series 4000, Grade 1 for bored locks and latches.
2. BHMA A156.3, Grade 1 for exit devices.
3. BHMA A156.5, Grade 1 for auxiliary locks.
4. BHMA A156.12, Series 5000, Grade 1 for interconnected locks and latches.
5. BHMA A156.13, Series 1000, Grade 1 for mortise locks and latches.
6. Lever handles on locksets and latchsets.

7. Provide trim on exit devices matching locksets.

D. Key locks to Owner's new master-key system.

1. Cylinders with five-pin tumblers and removable cores.
2. Provide cylinders for other locking doors that do not require other hardware.
3. Provide construction keying.
4. Provide key control system, including cabinet.

E. Closers:

1. Mount closers on interior side (room side) of door opening. Provide regular-arm, parallel-arm, or top-jamb-mounted closers as necessary.
2. Adjustable delayed opening (accessible to people with disabilities) feature on closers.

F. Provide wall stops or floor stops for doors without closers.

G. Provide hardware finishes as follows:

1. Hinges: Matching finish of lockset/latchset.
2. Locksets, Latchsets, and Exit Devices: Bright chrome plated.
3. Closers: Matching finish of lockset/latchset.
4. Other Hardware: Matching finish of lockset/latchset.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mount hardware in locations recommended by the Door and Hardware Institute unless otherwise indicated.

3.2 HARDWARE SCHEDULE

A. Hardware Group 1: Doors 100, 101, 102, 104

1. 3 ea. Hinges 5BB1 HW 4.5 x 4.5 x NRP 628 IVE
2. 1 ea. Lockset AL 70 PD F84 628 Schlage
3. 1 ea. Closer 4041 SCUSH 628 LCN
4. 1 ea. Threshold 253x3 A Pemko
5. 1 set Weatherstripping 303AS x 36” x 84” x Alum. Pemko
6. 1 ea. Kickplate K0050 10” x 34” x .050 x 628
7. 1 ea. Door sweep 117N AL NGP

SECTION 088000 - GLAZING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

B. Fire-Resistance-Rated Assemblies: Provide products that comply with NFPA 80 and are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for applications indicated.

C. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201 and ANSI Z97.1.

D. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated.

1. GANA Publications: GANA's "Glazing Manual."
2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing"; and AAMA TIR-A7, "Sloped Glazing Guidelines."
3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Sloped Glazing Guidelines."
4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "Glazing Guidelines for Sealed Insulating Glass Units."

E. Insulating-Glass Certification Program: Permanently marked with certification label of Insulating Glass Certification Council.

PART 2 - PRODUCTS

2.1 GLASS

A. Mirror Glass GL-1: ASTM C 1503, Mirror Select Quality, 3.0 mm thick, with edges flat polished.

1. Safety Glass for Mirrors: Fully tempered.

2.2 FABRICATED GLASS PRODUCTS

A. Sealed Insulating-Glass Units GL-1: Factory-assembled units complying with ASTM E 774 for Class CBA units, with two 5.0-mm-thick sheets of glass separated by a 1/2-inch dehydrated space filled with air.

1. Low-Emissivity Coating: Second surface.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with combined recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are contained in GANA's "Glazing Manual."

B. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

C. Remove nonpermanent labels, and clean surfaces immediately after installation.

END OF SECTION 088000

SECTION 092713 – REINFORCED FIBERGLASS PANEL (RFP orFRP)

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Fiberglass Reinforced Wall Panels: Prefinished polyester glass reinforced plastic sheets and adhered to unfinished gypsum wallboard per ASTM E 84 and (FDA) 1999 Food Code 6-101.11.

1. Products:

a. Marlite Standard with PVC molding

b. Crane Glasboard

c. Glasteel Glasliner FRP

B. Adhesives: As recommended by FRP manufacturer.

C. Joint-Treatment Materials: ASTM C 475/C 475M.

2.2 PANELS

A. Fiberglass reinforced thermosetting polyester resin panel sheets complying with ASTM D 5319.
1. Coating: Multi-layer print, primer and finish coats or applied over-layer.
2. Dimensions:
   a. Thickness – 0.090 inch nominal
   b. Width - 4'-0" nominal
   c. Length – 8'-0" nominal
3. Tolerance:
   a. Length and Width: +/-1/8 inch (3.175mm)
   b. Square - Not to exceed 1/8 inch for 8 foot (2.4m) panels or 5/32 inch (3.96mm) for 10 foot (2.4m) panels
4. Extruded PVC Trim Profiles for panel thickness provided

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with manufacturer's recommended procedures and installation sequence.

B. Install FRP Panels level, plumb, true, and aligned with adjacent materials. Use concealed shims where required for alignment.

C. Predrill fastener holes. Fasten as required to comply with dimensional tolerances as specified by manufacturer.

D. Attach pieces at joints with adhesive, and band or brace together until adhesive is cured.

E. Use joint-treatment materials to finish FRP Panels to produce surfaces ready to receive specified finish.

1. Finish joints between units with moldings installed as specified.

END OF SECTION 092713

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

B. Fire-Resistance-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

C. STC-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 90 and classified per ASTM E 413 by a qualified independent testing and inspecting agency.

PART 2 - PRODUCTS

2.1 PANEL PRODUCTS

A. Provide in maximum lengths available to minimize end-to-end butt joints.

B. Interior Gypsum Board: ASTM C 36/C 36M or ASTM C 1396/C 1396M, in thickness indicated, with manufacturer's standard edges. Regular type unless otherwise indicated.

C. Water-Resistant Gypsum Backing Board: ASTM C 630/C 630M or ASTM C 1396/C 1396M, in thickness indicated. Regular type unless otherwise indicated.

D. Glass-Mat, Water-Resistant Gypsum Backing Board: ASTM C 1178/C 1178M, of thickness indicated. Regular type unless otherwise indicated.

1. Product: G-P Gypsum; Dens-Shield Tile Guard.

2.2 ACCESSORIES

A. Trim Accessories: ASTM C 1047, formed from galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet. For exterior trim, use accessories formed from hot-dip galvanized-steel sheet, plastic, or rolled zinc.

1. Provide corner bead at outside corners unless otherwise indicated.
2. Provide LC-bead (J-bead) at exposed panel edges.
3. Provide control joints where indicated.

B. Aluminum Accessories: Extruded-aluminum accessories indicated with manufacturer's standard corrosion-resistant primer.

C. Joint-Treatment Materials: ASTM C 475/C 475M.

1. Joint Tape: Paper unless otherwise recommended by panel manufacturer.
2. Joint Compounds: Drying-type, ready-mixed, all-purpose compounds.
3. Skim Coat: For final coat of Level 5 finish, use high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install gypsum board to comply with ASTM C 840.

1. Isolate gypsum board assemblies from abutting structural and masonry work. Provide edge trim and acoustical sealant.
2. Single-Layer Fastening Methods: Fasten gypsum panels to supports with screws.

B. Install cementitious backer units to comply with ANSI A108.11.

C. Fire-Resistance-Rated Assemblies: Comply with requirements of listed assemblies.

D. Finishing Gypsum Board: ASTM C 840.

1. At concealed areas, unless a higher level of finish is required for fire-resistance-rated assemblies, provide Level 1 finish: Embed tape at joints.
2. At substrates for tile, provide Level 2 finish: Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges.
3. Unless otherwise indicated, provide Level 4 finish: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges.
4. Where indicated, provide Level 5 finish: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges. Apply skim coat to entire surface.

E. Glass-Mat, Water-Resistant Backing Panels: Finish according to manufacturer's written instructions.

F. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture free of starved spots or other evidence of thin application or of application patterns.

END OF SECTION 092900

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Samples.

B. Extra Materials: Deliver to Owner at least 20 linear feet of each type and color of resilient wall base installed.

PART 2 - PRODUCTS

A. Products:

1. Armstrong
2. Johnsonite
3. Roppe
4. Burke
5. Flexco

B. Color and Pattern: To be chosen via contractor submittal.

C. ASTM F 1861, Type TV (vinyl).

D. Group (Manufacturing Method): I (solid, homogeneous) .

E. Style: Cove (with top-set toe).

F. Minimum Thickness: 0.125 inch.

G. Height: 4 inches.

H. Lengths: coils in manufacturer's standard lengths.

I. Outside Corners: premolded.

J. Inside Corners: premolded.

2.2 RESILIENT ACCESSORY <Insert drawing designation, e.g., RA-1.>

A. Products:

1. To match base manufacturer.

B. Color: match base.

C. Description: Reducer strip for resilient floor covering.

D. Material: Rubber or Vinyl.

E. Profile and Dimensions: As indicated.

2.3 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement- or blended hydraulic cement-based formulation provided or approved by flooring manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by manufacturer to suit products and substrate conditions.

C. Stair-Tread-Nose Filler: Two-part epoxy compound recommended by resilient tread manufacturer to fill nosing substrates that do not conform to tread contours.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Prepare concrete substrates according to ASTM F 710. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

B. Adhesively install resilient wall base and accessories.

C. Install wall base in maximum lengths possible. Apply to walls, columns, pilasters, casework, and other permanent fixtures in rooms or areas where base is required.

D. Install stair-tread-nose filler to nosing substrates that do not conform to tread contours.

E. Install reducer strips at edges of floor coverings that would otherwise be exposed.

END OF SECTION 096513

SECTION 099100 - PAINTING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Summary: Paint exposed surfaces unless otherwise indicated.

1. Paint the back side of access panels.
2. Color-code mechanical piping in accessible ceiling spaces.
3. Do not paint prefinished items, items with an integral finish, operating parts, and labels unless otherwise indicated.

B. Submittals:

1. Product Data.
2. Samples.

C. MPI Standards:

1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

D. Mockups: Full-coat finish Sample of each type of coating, color, and substrate, applied where directed.

E. Extra Materials: Deliver to Owner 1 gal. of each color and type of finish coat paint used on Project, in containers, properly labeled and sealed.

PART 2 - PRODUCTS

2.1 PAINT

A. Products:

1. Benjamin Moore
2. Sherwin Williams
3. William Zinsser
4. PPG
5. Valspar

B. Material Compatibility: Provide materials that are compatible with one another and with substrates.

1. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. Colors: As selected.

PART 3 - EXECUTION

3.1 PREPARATION

A. Remove hardware, lighting fixtures, and similar items that are not to be painted. Mask items that cannot be removed. Reinstall items in each area after painting is complete.

B. Clean and prepare surfaces in an area before beginning painting in that area. Schedule painting so cleaning operations will not damage newly painted surfaces.

3.2 APPLICATION

A. Apply paints according to manufacturer's written instructions.

1. Use brushes only for exterior painting and where the use of other applicators is not practical.
2. Use rollers for finish coat on interior walls and ceilings.

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

1. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

C. Apply stains and transparent finishes to produce surface films without color irregularity, cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other imperfections. Use multiple coats to produce a smooth surface film of even luster.

3.3 EXTERIOR PAINT APPLICATION SCHEDULE

A. Steel:

1. Semigloss, Quick-Dry Enamel: Two coats over rust-inhibitive primer: MPI EXT 5.1A.

B. Galvanized Metal:

1. Semigloss, Alkyd Enamel, Two coats over cementitious galvanized-metal primer: MPI EXT 5.3A.

C. Aluminum:

1. Semigloss, Alkyd Enamel: Two coats over quick-drying primer for aluminum: MPI EXT 5.4F.

D. Dressed Lumber: Including architectural woodwork and doors.

1. Semigloss Alkyd: Two coats over alkyd primer: MPI EXT 6.3B.
2. Semitransparent Stain: Two coats: MPI EXT 6.3D.
3. Semigloss Varnish: Four coats: MPI EXT 6.3F.
4. .

E. Plastic and cemntitious trim: Including soffits.

1. Semitransparent Stain: Two coats: MPI EXT 6.4D.

3.4 INTERIOR PAINT APPLICATION SCHEDULE

A. Steel:

1. Semigloss, Quick-Dry Enamel Two coats over quick-drying alkyd metal primer: MPI INT 5.1A.

B. Galvanized Metal:

1. Semigloss, Alkyd Enamel: Two coats over cementitious galvanized-metal primer: MPI INT 5.3C.

C. Gypsum Board:

1. Semigloss Latex: Two coats over primer/sealer: MPI INT 9.2A.
2. Flat Alkyd: Two coats over latex primer/sealer: MPI INT 9.2C.

END OF SECTION 099100

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

C. Notify utility locator service for area where Project is located before site clearing.

D. Do not begin site-clearing operations until temporary erosion and sedimentation control measures are in place.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance.

B. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

C. Protect site improvements to remain from damage. Restore damaged improvements to condition existing before start of site clearing.

D. Locate and clearly flag trees and vegetation to remain or to be relocated.

E. Protect remaining trees and shrubs from damage and maintain vegetation. Employ a licensed arborist to repair tree and shrub damage. Restore damaged vegetation. Replace damaged trees that cannot be restored to full growth, as determined by arborist.

F. Do not store materials or equipment or permit excavation within drip line of remaining trees.

G. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.

1. Arrange with utility companies to shut off indicated utilities.

3.2 SITE CLEARING

A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.

B. Strip topsoil. Stockpile topsoil that will be reused in the Work.

1. Stockpile surplus topsoil to allow for respreading deeper topsoil.

C. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

D. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Neatly saw-cut length of existing pavement to remain before removing existing pavement.

E. In areas not to be further excavated, fill depressions resulting from site clearing. Place and compact satisfactory soil materials in 6-inch-thick layers to density of surrounding original ground.

F. Dispose of waste materials, including trash, debris, and excess topsoil, off Owner's property. Burning waste materials on-site is not permitted.

1. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

END OF SECTION 311000

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Unit prices for rock excavation are included in Division 01 Section "Price and Payment Procedures."

B. Unauthorized excavation consists of excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

C. Do not interrupt existing utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM; free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation, or other deleterious matter.

B. Unsatisfactory Soil: ASTM D 2487 Soil Classification Groups GC, SC, ML, MH, CL, CH, OL, OH, and PT.

C. Backfill and Fill: Satisfactory soil materials.

D. Sub-base Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 sieve.

E. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

F. Drainage Course: Narrowly graded mixture of [washed]crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing," during earthwork operations.

B. Protect sub-grades and foundation soils from softening and damage by water, freezing temperatures, or frost.

C. Explosives: Do not use explosives.

D. Excavate to sub-grade elevations regardless of character of materials and obstructions encountered.

E. Excavate to sub-grade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Architect. The Contract Sum will be adjusted for rock excavation according to unit prices included in the Contract Documents.

F. Excavate for structures, building slabs, pavements, and walkways. Trim sub-grades to required lines and grades.

G. Utility Trenches: Excavate trenches to indicated slopes, lines, depths, and invert elevations. Maintain 12 inches of working clearance on each side of pipe or conduit.

1. Place, compact, and shape bedding course to provide continuous support for pipes and conduits over rock and other unyielding bearing surfaces and to fill unauthorized excavations.
2. Place and compact initial backfill of satisfactory soil material or sub-base material, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit. Place and compact final backfill of satisfactory soil material to final sub-grade.

H. Plow strip or break up sloped surfaces steeper than 1 vertical to 4 horizontal to receive fill.

I. When sub-grade or existing ground surface to receive fill has a density less than that required for fill, break up ground surface, pulverize, moisture-condition or aerate soil, and re-compact.

J. Place backfill and fill in layers not more than 8 inches in loose depth at optimum moisture content. Compact each layer under structures, building slabs, pavements, and walkways to 95 percent of maximum dry unit weight according to ASTM D 698; elsewhere to 90 percent.

K. Grade areas to a smooth surface to cross sections, lines, and elevations indicated. Grade lawns, walkways, and unpaved sub-grades to tolerances of plus or minus 1 inch and pavements and areas within building lines to plus or minus 1/2 inch.

L. Under pavements and walkways, place sub-base course material on prepared sub-grades and compact at optimum moisture content to required grades, lines, cross sections, and thicknesses.

M. Under slabs-on-grade, place drainage course on prepared sub-grade and compact to required cross section and thickness.

N. Allow testing agency to inspect and test each sub-grade and each fill or backfill layer and verify compliance with requirements.

O. Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 312000